

POPULATED PRE-ANALYSIS PLAN
for
Direct and Spillover Impacts of a Community-Level HIV/AIDS
Program: Evidence from a Randomized Controlled Trial in
Mozambique

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Introduction

This Populated PAP (Duflo et al., 2020) document presents all pre-specified analyses described in the pre-analysis plan (PAP) of the study “Direct and Spillover Impacts of a Community-Level HIV/AIDS Program: Evidence from a Randomized Controlled Trial in Mozambique”, AEA RCT Registry number AEARCTR-0003990, registered on March 8, 2019.¹ On the same date, we uploaded our first pre-analysis plan (PAP) to our AEA RCT Registry record. This date was prior to the endline survey and HIV testing coupon redemption, which were carried out between May and November 2019.

We had previously submitted our study as a Pre-Results Review Paper to the Journal of Development Economics (JDE).² The JDE refereeing process led to minor changes to our pre-specified analyses. Our study was accepted as a Pre-Results Review Paper at the JDE on July 22, 2019. We then uploaded the JDE Pre-Results Review Paper to our AEA RCT Registry as our second (and final) PAP on July 24, 2019.

Our submission of the second PAP therefore occurred two months into the seven-month process of administering the endline survey and HIV testing coupon redemption. None of the changes to the PAP between our first and second (final) PAP submissions were informed by any analyses of our endline survey data or data on HIV testing coupon redemption. Prior to submitting the second and final PAP, we had only conducted data quality control checks for feedback to enumerators in the field.

This Populated PAP accompanies the research paper “Knowledge, Stigma, and HIV Testing: An Analysis of a Widespread HIV/AIDS Program” by the same set of co-authors, which highlights a subset of the results below. In that research paper, we depart in the following ways in the terms we use to refer to different treatment conditions. In the research paper, we interchangeably use the terms “Treatment” and “FCC-enrolled” to refer to “directly enrolled beneficiary (DEB)” status, and use the term “FCC-ambient” to refer to “non-directly enrolled beneficiary (non-DEB)” status; we also refer to the Randomization Stage 3 treatments as “minitreatments”. Aside from using different terms to refer to treatment conditions, the analyses presented in the research paper are otherwise the same as those pre-specified in the PAP, as carried out below.

Please see the PAP on our AEA RCT Registry record for details on the contents of the endline survey referenced below.

¹Our AEA RCT Registry record can be found at: <https://doi.org/10.1257/rct.3990-5.0>

²<http://jde-preresultsreview.org/>

A Details on Outcomes and Hypotheses

A.1 Primary Hypothesis

The primary question of interest in this study is: what are the direct effects of the *Força à Comunidade e Crianças* (FCC, “Strengthening Communities and Children”) program on beneficiary households?

We address this question by estimating the causal effect of a household being a directly enrolled beneficiary (DEB) of the FCC program, all of whom are in treatment communities. In estimating this effect, all households in control communities will be the control group. (Non-DEB households in treatment communities will be the subject of secondary analyses.)

Among primary outcomes of interest, there are two types. First, there are outcomes measuring knowledge of, contact with, and services provided by the FCC local implementing partners (LIPs). These will be considered “first stage” outcomes, which we will test to confirm and measure the extent to which the FCC program reached the intended beneficiaries. Second, there are the final outcomes of primary interest.

A.1.1 Knowledge of, Contact with, and Services Provided by LIPs

These outcomes come from the endline survey, reported by the primary household respondent. Section M (Support) of the endline survey asks a series of questions on the household’s knowledge of, contact with, and services provided by FCC local implementing partners (LIPs). In this context, we examine three outcome variables:

- An indicator for a household having heard of the FCC-LIP (equal to 1 if answering “yes” to question M01, and 0 otherwise).
- An indicator for a household having been visited by a Case Care Worker (CCW) of the FCC-LIP (equal to 1 if answering “yes” to question M02, and 0 otherwise).
- An indicator for a household having been referred to or received any services from the FCC-LIP. This indicator is constructed from several questions in Section M, which asks about services received from non-government organizations (NGOs), and which organization provided these services. Specifically, this indicator will be equal to 1 if the respondent reports the LIP in response to any of the questions MA5, MA8, M09, M13, M20, M24, M28, M31, M34, M36, M39, M41, M42 (and otherwise equal to 0).

Hypothesis 1 *Assignment of a household to DEB status raises the knowledge of, contact with, and services provided by FCC local implementing partners (LIPs), compared to households in control communities.*

A.1.2 Final Outcomes of Primary Interest

Our primary analyses test whether household assignment to strong encouragement for participation in the FCC program (which we refer to as directly enrolled beneficiary or “DEB” status) leads to higher rates of HIV testing in the household. HIV testing is the outcome variable of primary focus because it is a prerequisite for benefiting from the FCC program in the health domain.³ HIV testing opens the door to FCC interventions promoting antiretroviral (ART) treatment initiation and adherence. In addition, HIV testing is emphasized and encouraged in the context of major FCC program components (OVC home visits by community workers, and school-based programs). The more specialized and narrower program components (such as VSLAs and youth groups) also systematically reinforce the importance of HIV testing.

The outcome variable of primary interest is HIV testing at the household level. This is a binary outcome indicating that the household either self-reports having had or is directly observed by our survey staff having an HIV test upon our recommendation. This outcome captures the combination of having already had an HIV test, as well as openness to recommendations for future testing, both of which may be influenced by exposure to the FCC program.

To be specific, the component variables of this outcome variable are:

- *HIV testing (self-reported)*: An indicator that anyone in the household has been tested for HIV in the last 12 months. This is a household-level variable equal to 1 if at least one household member is reported to have had an HIV test in the last 12 months, and 0 otherwise. This variable will be created based on answers to the endline survey household-level question MA4 (and sub-question MA6) and individual-level question K10 (and sub-question K11).
 - MA4: Have you or any household member been referred to take an HIV test during the past 12 months?
 - * MA6: If yes, did anyone in the household take up the recommendation to be tested for HIV in the last 12 months?
 - K10: To your knowledge, have you ever been tested for HIV?
 - * K11: If yes, when was the most recent test? (1 = in the last 12 months, 2 = 12-23 months ago, 3 = more than 2 years ago)

³Our primary outcome variables measure HIV testing for both adults and children. The health of adults (in particular, their HIV status) is an important determinant of the outcomes of children in their households; HIV testing can lead adults to learn they are HIV positive, leading them to initiate ART, with positive effects on children in their households. When it comes to children (those aged below 18), HIV testing is important as well, most importantly after puberty and sexual debut leads to non-trivial rates of new HIV infection. There are also much smaller but nonzero rates of HIV infection from mothers (or other household members) to younger children.

- *HIV testing (directly observed)*: An indicator that at least one of a household’s HIV testing coupons has been redeemed. This is a household-level variable equal to 1 if at least one of a household’s incentive coupons is presented at the local health clinic for the HIV testing incentive payment before the 14-day deadline following the endline survey, and 0 otherwise.⁴

Our composite HIV testing outcome is therefore equal to 1 if HIV testing (self-reported) is equal to 1 or HIV testing (directly observed) is equal to 1, and 0 otherwise.

Hypothesis 2 *Assignment of a household to DEB status raises rates of HIV testing in households, compared to households in control communities.*

A.2 Secondary Hypotheses

Several secondary hypotheses are of interest, related to comparison of impacts on non-DEB households, impacts on other outcomes, mechanisms of impacts on DEBs, and spillovers from DEB to non-DEB households.

A.2.1 Impacts on HIV Testing, examining self-reported and directly observed variables separately

We also examine the two HIV testing variables separately, without combining them into one composite outcome:

1. The measure of HIV testing based survey self-reports, and
2. the directly observed measure of HIV testing based on redemption of testing incentive coupons.

These two outcomes are worth examining separately, because they measure distinct things, and each has strengths and weaknesses. HIV testing in the last 12 months is of greater research and policy interest, because it is not financially incentivized and therefore is the “natural” context in which the HIV testing decision is made. But this outcome measure has the downside of being self-reported and may be subject to reporting biases; in particular, it is likely to be overstated by households in the survey, particularly in treatment locations and for DEB households. We therefore complement this measure with a directly observed measure: redemption of the coupons incentivizing HIV testing. Because the take-up of the coupons is directly observed, it has an important strength: it is immune from survey-reporting biases. The drawback of this measure is that the HIV tests are financially

⁴The directly observed variable is coded as zero for households refusing any incentive coupons, which is rare. Another rare case is households with no-one eligible for coupons because everyone has been tested within the last three months; in this case the directly observed variable is again be set to zero.

incentivized, which departs from the general context of HIV testing. We believe the financial incentive is necessary to ensure the respondents turn in the coupons to our research staff at clinics (without submission of the coupons, there would be no way to measure take-up of testing).

If results differ between the self-reported and directly observed measures of HIV testing, we base substantive conclusions and policy recommendations on the findings that use the directly observed outcome.

Hypothesis 3 *Assignment of a household to DEB status raises rates of HIV testing in households, compared to households in control communities, as measured separately by the self-reported and directly observed outcome variables.*

A.2.2 Impacts on School Attendance

School attendance is a secondary outcome of interest because an endorsement to attend school and to prioritize education is a component of the home visits of Case Care Workers. School-based components of FCC could also raise school attendance. We estimate the effect of a student's household being a directly enrolled beneficiary (DEB) of the FCC program, with households of all students in control communities as the control group.

The outcomes are:

- *School attendance (self-reported)*: An indicator for a child attending school. This is an individual-level variable equal to 1 if a child is reported to be attending school, and 0 otherwise. The value of the indicator is determined based on the response to endline survey question A17. This variable will be created for all school-age children (aged 6-17) listed in the baseline survey.

Hypothesis 4 *Assignment of a household to DEB status raises rates of school attendance among children in the household.*

A.2.3 Impacts on Other Outcomes

Other outcomes are also of secondary interest. We consider these secondary because they are less likely to be influenced by the FCC program. Some outcomes (such as adherence to antiretroviral medication (ART)) are relevant only for HIV positive individuals, and others (such as the index of assets owned) is likely only be affected in households enrolled in certain FCC components (such as the village savings and loan (VSL) program) that are expected to have relatively few participants. Life satisfaction is relevant for all households, but we consider it quite unlikely that the program will affect this outcome.

As in the primary analyses, we estimate the effect of a household being a directly enrolled beneficiary (DEB) of the FCC program, with all households in control communities as the control group.

The outcomes are:

- *Life satisfaction*: Question P1 from endline survey: “Please imagine a ladder with steps numbered from zero at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?” This is defined at the individual level for all adult respondents.
- *Household asset index* defined as the first principal component of a vector of indicator variables for ownership of 14 assets (car, motorcycle, bicycle, radio, television, sewing machine, refrigerator, freezer, iron, bed, table, mobile phone, clock, and solar panel). This is defined for all households.
- *Health care utilization* for individuals who self-report being HIV positive. This is defined at the individual level for any individuals reported to be HIV positive in the endline survey.
 - An indicator for being on antiretroviral therapy (ART). This is equal to 1 if the individual reported currently being on ART, and 0 otherwise, based on endline survey question K21 (“Are you currently taking antiretroviral medicines?”).
 - An indicator for having high ART adherence. This is equal to 1 if the individual is reported to have missed no doses in the last 30 days (perfect adherence), and 0 otherwise, based on endline survey question K23 (“How often did you miss doses over the last 30 days?”). This variable is coded as zero for anyone not currently on ART.

Hypothesis 5 *Assignment of a household to DEB status raises life satisfaction, household assets and ART adherence rates.*

A.2.4 Impacts on secondary outcomes that are possible mechanisms

We also measure impacts of the FCC program on outcomes in four groups or “families”: 1) HIV-related knowledge, 2) HIV-related stigmatizing attitudes, 3) other positive HIV-related attitudes, and 4) risky sexual behavior. These intermediate outcomes are all measured in the endline survey.

These outcomes are of interest in their own right, and in addition they may be mechanisms through which the program achieves its effects.

As in the primary analyses, we estimate the effect of a household being a directly enrolled beneficiary (DEB) of the FCC program, with all households in control communities as the control group.

The outcomes are as follows, by family. As relevant, we indicate specific component question numbers from the endline survey.

- *HIV-related knowledge.* Questions are indicators and are coded as 1 if answered correctly, and 0 otherwise. (Correct answers are in parentheses below, with additional detail as needed.)
 - J03: Have you ever heard of an infection called HIV? (Yes)
 - J05: Can HIV be transmitted from one person to another through sex behaviors? (Yes)
 - JA9: Can HIV be transmitted from one person to another through blood contact? (Yes)
 - J06: Can people reduce their chance of getting HIV by having just one uninfected sexual partner who has had no other sexual partners? (Yes)
 - J06a: Can people reduce their chance of getting HIV by not having sexual intercourse at all? (Yes)
 - J07: Can people get HIV from mosquito bites? (No)
 - J07a: Can people get HIV from shaking hands with an infected person? (No)
 - J07b: Can people get HIV from kissing an infected person? (No)
 - J14: Can people get HIV from sharing food with a person who has HIV? (No)
 - J15: Can people get HIV via witchcraft or other supernatural means? (No)
 - J21: Can HIV be transmitted from a mother to her baby during pregnancy? (Yes)
 - J22: Can HIV be transmitted from a mother to her baby during delivery? (Yes)
 - J23: Can HIV be transmitted from a mother to her baby by breastfeeding? (Yes)
 - J16: Is it possible for a person who looks healthy to have HIV? (Yes)
 - J16a: Is it possible for a person who feels healthy to have HIV? (Yes)
 - J08: Have you ever heard of a condom? (Yes)
 - J09: Do you know where to buy condoms? (Yes)
 - J10: Do you know where to obtain free condoms? (Yes)
 - J11: Do you think people can reduce the risk of transmission of HIV if they use condoms whenever they have sex? (Yes)
 - Indicator for knowing where one can get tested for HIV. Coded from question J24: Do you know of a place where people can go to get tested for HIV? (and answering Yes), and J25: If yes, where can people get tested for HIV? (correctly naming a nearby ART site).

- JA1: Do you know if there are any special medicines that a doctor or nurse can give a woman infected with HIV, to reduce the risk of mother-to-baby transmission? (Yes)
 - J26: Is there an effective treatment for HIV? (Yes)
 - J26a: If yes, do you know what the treatment is called? (Antiretroviral therapy, or ART)
 - J27: Do you know of a place where people can receive treatment for HIV? (Yes)
 - J29: Can HIV be cured? (No)
 - JA5: Do you think treatment for HIV will be expensive at the local health center? (No)
 - JA6: Do you think treatment for HIV at the local health center can help patients stay healthy? (Yes)
 - JA7: Do you think treatment for HIV at the local health center can help patients live for as long as uninfected people? (Yes)
 - JA8: Do you think treatment for HIV at the local health center can prevent HIV transmission? (Yes)
 - JA13: For people infected with HIV, should they take medication even if they don't feel sick? (Yes)
 - J28: If HIV is left untreated can it cause AIDS (deficiency of the immune system that can lead to severe infections and death)? (Yes)
 - JA11: If not treated, how long do you think it takes for an HIV infected person to develop AIDS (deficiency of the immune system that can lead to severe infections and death)? (Exact answer is 10 years. Coded as correct if absolute difference between respondent's answer and 10 is below sample median in endline survey.)
 - JA12: If not treated, how long can a person sick with AIDS survive? (Exact answer is 3 years. Coded as correct if absolute difference between respondent's answer and 3 is below sample median in endline survey.)
- *HIV-related stigmatizing attitudes.* Questions are indicators and are coded as 1 if answer reveals lack of HIV-related stigma, and 0 otherwise. (Answers revealing lack of stigma are in parentheses below, with additional detail as needed.)
 - J17: Would you buy fresh vegetables from a shopkeeper or vendor if you knew that this person had HIV? (Yes)
 - J18: If a member of your family got infected with HIV, would you want it to remain a secret? (No)

- J19: If a member of your family became sick with AIDS would you be willing to care for them in your own household? (Yes)
- J20: In your opinion, if a teacher has HIV but is not sick, should they be allowed to continue teaching at school? (Yes)
- *Other positive HIV-related attitudes.* Questions are indicators and are coded as 1 if answer indicates a “positive” HIV-related attitude, and 0 otherwise. (Answers considered “positive” are in parentheses.)
 - J13: Should children age 12-14 be taught about using a condom to avoid getting HIV? (Yes)
 - JA2: If a woman knows that her husband has an illness that is sexually transmitted, is it justified for her to ask her husband to use a condom in their relationship? (Yes)
 - JA3: It is justified for a wife to refuse to have sexual relations with her husband if she knows that he has sex with other women? (Yes)
- *Sexual behavior*
 - L03: How many sexual partners have you had in your lifetime? (count)
 - L04: How many sexual partners have you had in the last 12 months? (count)
 - L05: Have any of your partners ever been tested for HIV? (1 = yes, 0 = no)
 - L06: Have you ever had sex with someone who you know to have HIV? (1 = yes, 0 = no)
 - L07: Do you currently own condoms? (1 = yes, 0 = no)
 - Indicator for “always uses a condom when having sex” (1 = yes, 0 = no). (Based on responding “all of the time” to question L08: How often do you or your partner use a condom when having sex? (1 = all of the time, 2 = most of the time, 3 = sometimes, 4 = never).)
 - Indicator for a man ever having had sex with a male partner (1 = yes, 0 = no). (Constructed for men only. Based on responding “yes” to question L09: I have to ask this of everyone. Do you have or have you ever had sex with a male partner? This includes your current partner (if you are married this is your spouse) as well as any past sexual partners.)
 - L11: Have you ever been paid in exchange for sex? (Payment can be in money or in other forms, such as goods.) (1 = yes, 0 = no)
 - L12: Have you ever paid someone in exchange for sex? (Payment can be in money or in other forms, such as goods.) (1 = yes, 0 = no)

Hypothesis 6 *Assignment of a household to DEB status raises HIV-related knowledge, reduces HIV-related stigmatizing attitudes, increases other positive attitudes towards HIV, and reduces rates of risky sexual behavior, compared to households in control communities.*

A.2.5 Impacts on non-directly enrolled-beneficiary (non-DEB) households

For all primary and secondary hypotheses regarding the impact of a household having directly enrolled beneficiary (DEB) status, we estimate the impact of being in an FCC treatment community but as a non-DEB household (not being assigned to being a directly-enrolled beneficiary or DEB). These are impacts for households exposed to or participating in the FCC program at an “ambient” rate of program coverage in population.

In each case, the outcome variables will be identical to the outcome variables examined for the hypothesis for DEB status. The causal (right hand side) variable of interest is an indicator for non-DEB status, and the comparison group is all OVCs in control communities.

For each prior hypothesis number related to impacts of DEB status, we append the suffix “(nonDEB)” to indicate the corresponding hypothesis for impacts of non-DEB status. The corresponding non-DEB hypotheses to be explored are:

Hypothesis 1 (nonDEB) *Households who are in FCC communities but not assigned to directly enrolled beneficiary (DEB) status will have higher knowledge of, contact with, and services provided by FCC local implementing partners (LIPs), compared to households in control communities.*

Hypothesis 2 (nonDEB) *Households who are in FCC communities but not assigned to directly enrolled beneficiary (DEB) status will have higher rates of HIV testing in households, compared to households in control communities.*

Hypothesis 3 (nonDEB) *Households who are in FCC communities but not assigned to directly enrolled beneficiary (DEB) status will have higher rates of HIV testing in households, compared to households in control communities, as measured by separately by the self-reported and directly observed outcome variables.*

Hypothesis 4 (nonDEB) *Households who are in FCC communities but not assigned to directly enrolled beneficiary (DEB) status will have higher rates of school attendance among children in the household.*

Hypothesis 5 (nonDEB) *Households who are in FCC communities but not assigned to directly enrolled beneficiary (DEB) status will have higher life satisfaction, household asset indices, and ART adherence rates.*

Hypothesis 6 (nonDEB) *Households who are in FCC communities but not assigned to directly enrolled beneficiary (DEB) status will have higher HIV-related knowledge, lower*

HIV-related stigmatizing attitudes, higher rates of other positive HIV-related attitudes, and lower rates of risky sexual behavior, compared to households in control communities.

A.2.6 Spillovers

Another key question of interest is: given that not all households in a community directly benefit from the program, to what extent do impacts spill over from directly affected households to others that are geographically or socially proximate? We consider this a question of secondary interest because it is predicated on positive direct effects for directly enrolled beneficiaries (DEBs) (Hypotheses 1 and 2).

One key channel through which spillovers may occur is information: DEBs may share information with proximate non-DEBs. In addition, stigma may be a key mechanism, if reduced stigma by DEBs leads non-DEBs in proximity to them to be more willing to take up HIV testing. Other channels are possible, but we consider them less likely.⁵

The outcome of interest for this analysis is the measure of HIV testing (Hypothesis 2). Right-hand-side variables of interest are measures of social and geographic proximity to DEBs.

Hypothesis 7 *Geographic and social proximity to DEB households leads non-DEB households to have higher HIV testing rates.*

A.2.7 Impacts of Randomization Stage 3 Treatments

We are also interested in the extent to which other types of more focused interventions are complementary with the FCC program. We implement additional treatments immediately after the endline survey (the Randomization Stage 3 treatments). These additional treatments provide information about HIV, information about ART, information to reduce concerns about HIV-related stigma, and high financial incentives to receive an HIV test. These treatments are randomly assigned at the household level.

The outcome of interest are the directly-observed measure of HIV testing (incentive coupon redemption) at the household level, as described above. This is the only outcome measure observable after the endline survey.

We estimate the causal impacts of the Randomization Stage 3 treatments on HIV testing, and the extent to which their effects vary according to a household's treatment status (DEB, non-DEB, and control). If these treatments have less impact on HIV testing for treated than in control households, we will take this as evidence the FCC program and these more targeted treatments are substitutes. Complementarity, on the other hand, would be revealed if these targeted treatments have larger impact for treated than control households.

⁵Channels we consider unlikely include health channels, such as via contagion, or financial channels, if DEBs benefit financially from the program and transfer resources to non-DEBs.

Hypothesis 8 *The Randomization Stage 3 treatments (information about HIV, information about ART, information to reduce concerns about HIV-related stigma, and high financial incentives for HIV testing) have positive effects on rates of HIV testing.*

Hypothesis 9 *The Randomization Stage 3 treatments (information about HIV, information about ART, information to reduce concerns about HIV-related stigma, and high financial incentives for HIV testing) have smaller effects (in absolute value) on rates of HIV testing among DEB households than among households in control communities.*

We also examine whether the effects of the Randomization Stage 3 treatments on HIV testing differ for non-DEB households in treatment communities, compared to households in control communities.

Hypothesis 10 *The Randomization Stage 3 treatments (information about HIV, information about ART, information to reduce concerns about HIV-related stigma, and high financial incentives for HIV testing) have smaller effects (in absolute value) on rates of HIV testing among non-DEB households than among households in control communities.*

B Multiple Outcome and Multiple Hypothesis Testing

To account for the pairwise error rate for false positives when testing within a family of outcomes, we report the p-values adjusted for multiple hypothesis testing. In all cases where we adjust p-values to control the false discovery rate, we use the method of List et al. (2016). This is performed in Stata 15 using commands from Barsbai et al. (2020). In following, we describe the families of outcomes within which we group the multiple hypothesis testing.

B.1 Primary Hypotheses and Primary Outcome

Only one treatment is of primary interest: household random assignment to being a directly enrolled beneficiary (DEB) of the FCC program.

Outcomes related to services provided via the FCC local implementing partners (LIPs) are considered “first stage” outcomes, which we test to confirm and measure the extent to which the FCC program reached the intended beneficiaries. When we assess Hypothesis 1, we apply a multiple hypothesis test correction to the three “first stage” variables (indicators for knowledge of, contact with, and services provided by FCC local implementing partner).

No multiple hypothesis test correction is necessary for Hypothesis 2 because that hypothesis only has one outcome variable.

B.2 Secondary Hypotheses and Outcomes

We have several secondary hypotheses and associated outcomes. These secondary hypotheses have to do with FCC program impacts in households that are not directly enrolled beneficiaries (non-DEBs), mechanisms through which the FCC program achieves its effects, and spillovers from DEB to non-DEB households. Because these are secondary and exploratory analyses, the multiple hypothesis test corrections are conducted within families of outcomes associated with particular secondary hypotheses and are not integrated with the multiple hypothesis test corrections for the primary hypotheses.

Aside from the multiple hypothesis test corrections listed below, any other analyses conducted are considered exploratory and therefore will not be subject to multiple hypothesis test corrections.

For the secondary hypotheses, we apply multiple hypothesis test corrections in the following groups of coefficients:

- Hypothesis S0: Coefficients on DEB status across regressions for the self-reported and directly observed measures of HIV testing.
- Hypothesis S1: Coefficients on DEB status across regressions for the self-reported and directly observed measures of school attendance.

- Hypothesis S2: Coefficients on DEB status across regressions for survey-reported individual life satisfaction, household asset index, and two measures of individual ART adherence.
- Hypothesis S3: Coefficients on DEB status across regressions within each of the following families (but not across families): a) HIV-related knowledge, b) HIV-related stigmatizing attitudes, and c) sexual behavior.
- Hypothesis S4: The coefficient on social proximity to DEB households and the coefficient on the indicator for the closest geographic proximity to DEB households.
- Hypothesis S5: The three coefficients on the HIV information, ART information, and anti-stigma treatment indicators.
- Hypothesis S6: The three coefficients on the HIV information, ART information, and anti-stigma treatment indicators, plus the three coefficients on each of these interacted with DEB status.
- Hypothesis P1-nonDEB: Coefficients on non-DEB status across the three regressions for outcomes related to the knowledge of, contact with, and services provided by FCC local implementing partner.
- Hypothesis P2-nonDEB: Coefficients on non-DEB status across regressions for survey-reported and directly observed HIV testing.
- Hypothesis S1-nonDEB: Coefficients on non-DEB status across regressions for survey-reported and directly observed school attendance.
- Hypothesis S2-nonDEB: Coefficients on non-DEB status across regressions for survey-reported asset index and two measures of ART adherence.
- Hypothesis S3-nonDEB: Coefficients on non-DEB status across regressions within each of the following families (but not across families): a) HIV-related knowledge, b) HIV-related stigmatizing attitudes, and c) sexual behavior.
- Hypothesis S6-nonDEB: The three coefficients on the HIV information, ART information, and anti-stigma treatment indicators, plus the three coefficients on each of these interacted with non-DEB status.

C Model Specification

We test hypotheses using ordinary-least-squares regression analyses. To estimate the impact of DEB and non-DEB status, the regression equation is as follows:

$$\mathcal{Y}_{ijs} = \alpha + \beta \mathcal{B}_{ijs} + \lambda N_{ijs} + \theta_j + \gamma_s + \varepsilon_{ijs} \quad (\text{C.1})$$

\mathcal{Y}_{ijs} is the post-treatment outcome for individual or household i in community j in stratification cell (matched pair) s . \mathcal{B}_{ijs} is the indicator for a household being randomly assigned to directly-enrolled beneficiary (DEB) status (1 if DEB, and 0 otherwise), while N_{ijs} is the indicator for a household being randomly assigned to non-directly beneficiary (non-DEB) status in a treatment community (1 if non-DEB, and 0 otherwise) (Both variables are equal to zero for anyone in a control community. In other words, \mathcal{B}_{ijs} and N_{ijs} simply partition households in treatment communities into two mutually exclusive subgroups.) θ_j is a measure of wind speed in knots for community j to control the impact of Cyclone Idai which affected study areas during the endline survey in 2019.⁶ γ_s is a fixed effect for stratification cell s .⁷ ε_{ijs} is the mean-zero error term. We cluster standard errors at the level of 76 communities (Moulton, 1986).

The coefficient β is the intent to treat (ITT) effect of assignment to DEB status (high probability of a home visit by a CCW), while the coefficient λ is the corresponding effect of assignment to non-DEB status (receiving a CCW home visit at the lower ambient rate in the community). Random assignment of DEB status allows interpretations of these coefficients as causal effects.

This regression will be used to test hypotheses related to the impact of random assignment to DEB status and non-DEB status within treatment communities. Hypothesis tests regarding the impact of DEB status will refer to coefficient β in this regression for the relevant outcome variable. Hypothesis tests regarding the impact of non-DEB status will refer to coefficient λ in this regression for the relevant outcome variable. Table PAP1 shows the pre-specified hypotheses laid out for both DEB and non-DEB households in the AEA registered pre-analysis plan.

The outcomes of interest measured as post-treatment outcome \mathcal{Y} are displayed in Table PAP2. They are broadly categorized as associating to attrition, household balance across treatment assignment, local implementing partner (LIP) services, HIV testing, school attendance, welfare measures, antiretroviral treatment (ART), knowledge about HIV/AIDS, stigmatizing attitudes towards HIV/AIDS, and sexual behavior. The outcomes were measured at the household, individual, adult and child levels.

⁶Cyclone Idai affected Sofala and Manica provinces, but did not affect Zambezia province. For further detail on the construction of the wind speed index used to capture the cyclone at the community level, please refer to Appendix Section F of the research paper “Knowledge, Stigma, and HIV Testing: An Analysis of a Widespread HIV/AIDS Program” by the same set of co-authors.

⁷The inclusion of the stratification cell fixed effects reduces standard errors by absorbing residual variation. Stratification is at the level of 38 matched pairs of communities within which treatment status was randomly assigned (so stratification cell fixed effects are equivalent to matched pair fixed effects).

Table PAP1: **Primary and Secondary Hypotheses**

Panel A. Primary Hypotheses	
LABEL	HYPOTHESIS
P1	Assignment of a household to DEB status raises, and households who are in FCC communities but not assigned to directly-enrolled beneficiary (DEB) status, will have higher knowledge of, contact with, and services provided by FCC local implementing partners (LIPs), compared to households in control communities.
P2	Assignment of a household to DEB status raises, and households who are in FCC communities but not assigned to directly-enrolled beneficiary (DEB) status, will have higher rates of HIV testing in households, compared to households in control communities.
Panel B. Secondary Hypotheses	
LABEL	HYPOTHESIS
S0	Assignment of a household to DEB status raises, and households who are in FCC communities but not assigned to directly-enrolled beneficiary (DEB) status, will have higher rates of HIV testing in households, compared to households in control communities, as measured separately by the self-reported and directly observed outcome variables
S1	Assignment of a household to DEB status raises, and households who are in FCC communities but not assigned to directly-enrolled beneficiary (DEB) status, will have higher rates of school attendance among children in the household.
S2	Assignment of a household to DEB status raises, and households who are in FCC communities but not assigned to directly-enrolled beneficiary (DEB) status, will have higher life satisfaction, household assets and ART adherence rates.
S3	Assignment of a household to DEB status raises, and households who are in FCC communities but not assigned to directly-enrolled beneficiary (DEB) status, will have higher HIV-related knowledge, reduces HIV-related stigmatizing attitudes, increases other positive attitudes towards HIV, and reduces rates of risky sexual behavior, compared to households in control communities.
S4	Geographic and social proximity to DEB households leads non-DEB households to have higher HIV testing rates.
S5	The Randomization Stage 3 treatments (Information about HIV, information about ART, information to reduce concerns about HIV-related stigma, and high financial incentives for HIV testing) have positive effects on rates of HIV testing.
S6	The Randomization Stage 3 treatments (Information about HIV, information about ART, information to reduce concerns about HIV-related stigma, and high financial incentives for HIV testing) have smaller effects (In absolute value) on rates of HIV testing among DEB, and non-DEB, households than among households in control communities.

Notes: The DEB and non-DEB hypotheses reported in the AEA pre-analysis plan have been combined based on the hypothesis they correspond to.

Table PAP2: **Variable Definitions**

VARIABLE	OBS. LEVEL	DEFINITION
Panel A. Attrition		
Followup Survey Success	Household	Indicator: Successful followup of household
Panel B. Household Balance		
OVC Criteria 1	Household	Indicator: If a household has children and a grandparent is the household head
OVC Criteria 2	Household	Indicator: Ratio of children to adults ≥ 4
OVC Criteria 3	Household	Indicator: Have school aged children and school aged children are not in school
OVC Criteria 4	Household	Indicator: Household eats less than 2 meals a day
OVC Criteria 5	Household	Indicator: Household goes some days without food
OVC Criteria 6	Household	Indicator: Household's primary income source is illegal or do not have a source of income
OVC Criteria 7	Household	Indicator: Have chronically ill household members
OVC Criteria 8	Household	Indicator: Have HIV positive household member
OVC Criteria 9	Household	Indicator: Have household member on ART medications
OVC Criteria 10	Household	Indicator: Have orphaned children
OVC Criteria 11	Household	Indicator: Have adults that died of chronic illness in the last 5 years
Panel C. Local Implementing Partner (LIP) Services		
Heard of FCC	Household	Indicator: Household has heard of the Local Implementing Partners (LIP)
Visited by Case Worker	Household	Indicator: Household has been visited by a Care Case Worker
Received Services	Household	Indicator: Household has received services from the Local Implementing Partners (LIP)
Panel D. HIV Testing		
Combined HIV Testing Measure	Household	Indicator: Household self-reported HIV testing in past 12 months or has redeemed at least 1 testing coupon
Self-Reported HIV Testing	Household	Indicator: Household self-reported HIV testing in past 12 months

Coupon Redemption for HIV Testing	Household	Indicator: Household has redeemed at least 1 testing coupon
Panel E. School Attendance		
Self-Reported School Attendance	Child	Indicator: Household self-reported that child ages 6-17 currently attends school
Directly-Observed School Attendance	Child	Indicator: Field team directly observed child ages 6-17 currently attending school
Panel F. Welfare Measures		
Life Satisfaction	Adult	On a scale of 0-10 with 10 representing the best possible life, where are you on this scale at this time?
Household Asset Index	Household	Index: The first principle component of indicating owning at least 1 of the following household assets: beds, table, mobile phone, radio, television, bike, motorbike, car, iron machine, freezer, fridge, sewing machine, clock (wall, wrist, or pocket) and solar panel
Panel G. Antiretroviral Treatment (ART)		
ART Usage	Individual	Indicator: Currently takes antiretroviral medicines
High ART Adherence	Individual	Indicator: ART adherence 100% in the last 30 days
Panel H.1. Overall HIV Knowledge		
HIV Knowledge Index	Adult	Index: Overall HIV knowledge covering sub-categories: general HIV knowledge, correct forms of transmission, transmission myths, protection methods, and knowledge about HIV treatment
Panel H.2. General HIV Knowledge		
General HIV Knowledge Index	Adult	Index: General knowledge of HIV
Heard of HIV	Adult	Indicator: Has heard of HIV/AIDS
Possible for Infected Person to Look Healthy	Adult	Indicator: Believe it is possible for HIV infected persons to look healthy
Possible for Infected Person to Feel Healthy	Adult	Indicator: Believe it is possible for HIV infected persons to feel healthy
HIV is Curable	Adult	Indicator: Believe HIV is a curable disease

Untreated HIV Leads to AIDS	Adult	Indicator: Believe if HIV is untreated then it will lead to AIDS
Length for Untreated HIV to AIDS	Adult	Indicator: Believe it takes 10 years for untreated HIV infected persons to develop AIDS. Coded as correct is absolute difference of answer and correct answer is below sample median.
Length of Survival for Untreated AIDS	Adult	Indicator: Believe it takes 3 years for untreated AIDS infected persons to die. Coded as correct is absolute difference of answer and correct answer is below sample median.

Panel H.3. HIV Transmission Knowledge

Correct Forms of Transmission Index	Adult	Index: Knowledge of the correct forms of HIV transmission
HIV Transmitted by Sexual Behavior	Adult	Indicator: Believe HIV is transmitted via sexual behavior
HIV Transmitted by Blood Cloats	Adult	Indicator: Believe HIV is transmitted via blood cloats
HIV Trasmitted via Pregnenacy	Adult	Indicator: Believe HIV is transmitted from mother to child via pregnenacy
HIV Trasmitted via Child Delivery	Adult	Indicator: Believe HIV is transmitted from mother to child via child delivery
HIV Transmitted by Breastfeeding	Adult	Indicator: Believe HIV is transmitted from mother to child via breastfeeding

Panel H.4. HIV Myths of Transmission Knowledge

Transmission Myth Index	Adult	Index: Belief in tranmission myths of HIV
HIV Transmitted by Mosquito Bites	Adult	Indicator: Believe HIV is transmitted via mosquito bites
HIV Transmitted by Hand-Shakes with Infected People	Adult	Indicator: Believe HIV is transmitted via hand shakes with an HIV infected person
HIV Transmitted by Kissing Infected People	Adult	Indicator: Believe HIV is transmitted via kissing with an HIV infected person

HIV Transmitted by Sharing Food with Infected People	Adult	Indicator: Believe HIV is transmitted via sharing food with an HIV infected person
HIV Transmitted via Witchcraft or Supernatural	Adult	Indicator: Believe HIV is transmitted via witchcraft or other supernatural events
Panel H.5. HIV Protection Methods Knowledge		
Protection Methods Index	Adult	Index: Knowledge of protection methods to prevent HIV
Heard of Condoms	Adult	Indicator: Has heard of condoms
Knows Where to Buy Condoms	Adult	Indicator: Knows where to buy condoms
Knows Where to Obtain Free Condoms	Adult	Indicator: Knows where to obtain condoms for free
Condoms Reduce HIV Transmission	Adult	Indicator: Believes that condoms reduce transmission of HIV/AIDS
Reduce HIV Risk by Monogomous Sex with Uninfected Person	Adult	Indicator: Believes can reduce HIV risk by having sex with only one partner who is uninfected
Reduce HIV Risk by not having Sex with Infected Person	Adult	Indicator: Believes can reduce HIV risk by not having sex with an HIV infected person
Panel H.6. HIV Treatment Knowledge		
Knowledge about HIV Treatment Index	Adult	Index: Knowledge of treatments for HIV/AIDS
Effective HIV Treatment Exists	Adult	Indicator: Believes that an effective treatment for HIV exists
Know Name of Treatment	Adult	Indicator: Knows that name of an HIV treatment

Know of Medicines Used for HIV/AIDS	Adult	Indicator: Knows of medicine used by doctors and nurses to treat HIV/AIDS
Infected Persons Should Take ART regardless of Feeling Sick	Adult	Indicator: Believes HIV infected persons should take ART regardless of feeling sick
Know Where to Receive HIV Treatment	Adult	Indicator: Knows where to receive HIV treatment
Think Treatment Expensive at Local Health Center	Adult	Indicator: Believes that HIV treatment is expensive at their local health center
Treatment can Help Infected Persons Stay Healthy	Adult	Indicator: Believes HIV treatment can help HIV infected persons stay healthy
Treatment can Help Prolong Infected Persons' Life	Adult	Indicator: Believes HIV treatment can help HIV infected persons prolong their lives
Treatment Prevents HIV Transmission	Adult	Indicator: Believes HIV treatment helps prevent the transmission of HIV/AIDS

Panel I. HIV Negative Stigmatizing Attitudes

HIV Stigma Attitude Index	Adult	Index: Negative stigmatizing attitudes
Buy Groceries from Infected Person	Adult	Indicator: Would buy groceries from an HIV infected person
Keep Infected Family Member a Secret	Adult	Indicator: If they had an HIV-positive family member, they would keep it a secret
Care for Infected Family Member in Own Home	Adult	Indicator: Would care for an HIV-positive family member in their own home

Not Sick Infected Teacher Should be Allowed to Teach	Adult	Indicator: Believe HIV infected teachers who are not sick should be allowed to teach
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Panel J. HIV Positive Stigmatizing Attitudes

12-14 Year Olds be Taught Condoms Prevent HIV	Adult	Indicator: Believe school age children ages 12-14 should be taught how condoms prevent HIV transmission
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Justified for Woman to Ask Husband with STI to Use a Condom	Adult	Indicator: Believe a woman is justified to ask husband who may have sexual transmitted disease to use a condom
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Justified for Woman to have Sex with Husband who is Sleeping with Others	Adult	Indicator: Believe a woman is justified to have sex with husband who is sleeping with others
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Panel K. Sexual Behavior

Sexual Behavior Index	Adult	Index: Good sexual behavior
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Count of Lifetime Sexual Partners	Adult	Lifetime number of sexual partners
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Count of Sexual Partners in Past 12 Months	Adult	Number of sexual partners in the past 12 months
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Sexual Partners Tested for HIV	Adult	Indicator: Know that their sexual partner has been tested for HIV
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Never had Sex with Infected Person	Adult	Indicator: Believe they have never had sex with an HIV infected person
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Currently Own Condoms	Adult	Indicator: Currently owns condoms
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Always Use Condoms During Sex	Adult	Indicator: Always uses condoms during sex
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[Men Only]: Never had Male Partner	Adult	Indicator: [For men only] Have never had sex with a man
Never Paid for Sex	Adult	Indicator: Have never paid someone in exchange for sex
Never been Paid for Sex	Adult	Indicator: Have never accepted payment from someone in exchange for sex

D Balance and Attrition

It is important to confirm the balance of baseline variables with respect to treatment assignment. We examine eleven variables that were collected during the vulnerability assessment survey during study enrollment (in 2017-18). These are dependent variables in estimation of Equation C.1. We report the results in Table PAP3. None of the coefficients on the DEB coefficient are large or statistically significant at conventional levels. Among the non-DEB coefficients, only one is statistically significant at conventional levels (this is an indicator for having a ratio of children to adults greater than four in the household, Column (3)). This share of significant coefficients is about what one would expect to see by pure chance for a significance level of 10%. These results provide no indication of a substantial imbalance in baseline household characteristics across treatment conditions.

Another key question is whether success in locating households in the endline survey is affected by treatment status. If so, this raises concerns about selection bias due to differential attrition. We examine this by regressing an indicator variable for a household being surveyed in the endline survey using Equation C.1. The results are displayed in Table PAP3 Column (12). The dependent variable mean in the control communities is 0.800 (an 80% rate of inclusion in the endline survey). The coefficient for being a directly enrolled beneficiary (DEB) is very small in magnitude and not statistically significantly different from zero at conventional levels. The coefficient on non-DEB status is positive and modest in size (0.033), and statistically significant, indicating that non-DEB households in treatment communities are slightly more likely to have been successfully surveyed in the regular round of the endline survey.

These results indicate no concern with selection bias for our pre-specified primary coefficient of interest (on DEB status) since DEB status is not associated with attrition. They do raise the possibility of selection bias due to differentially lower attrition related to non-DEB status. This should be kept in mind when interpreting coefficients on non-DEB status.⁸ (Note that we pre-specified that the treatment effect of non-DEB status is only of secondary interest in this analysis.)

⁸That said, we do not find evidence of major concerns related to the selectivity of the non-DEB households. Controlling for a full set of baseline variables does not have an appreciable effect on the non-DEB coefficients in our analyses, providing no evidence of concerns about selection bias in the non-DEB coefficient estimates.

Table PAP3: **Balance and Attrition by Treatment Status**

	OVC Balance											Attrition
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Child or Grandparent as Household Head	Ratio of Children to Adult ≥ 4	School Aged Children not in School	Household Eats < 2 Meals a Day	Household go some Days w/o Food	Primary Income Illegal or None	Have Chronically Ill Household Member	HIV + Household Member	Have a Member on ART	Have Orphaned Children	Adult Died of Chronic Illness in Past 5 Years	Followup Survey Success
DEB	-0.00132 (0.0150)	0.0236 (0.0142)	0.0237 (0.0172)	-0.000642 (0.00345)	0.0223 (0.0271)	-0.00515 (0.00658)	-0.0109 (0.0192)	-0.00312 (0.0152)	0.00836 (0.0152)	0.0176 (0.0200)	-0.000987 (0.0112)	-0.00481 (0.0122)
Non-DEB	-0.0288 (0.0181)	0.0264* (0.0157)	0.0255 (0.0185)	-0.000224 (0.00398)	0.00927 (0.0248)	0.00444 (0.00632)	-3.60e-05 (0.0204)	-0.00406 (0.0170)	0.00750 (0.0156)	0.0333 (0.0234)	0.0141 (0.0125)	0.0331** (0.0138)
Observations	3,658	3,658	3,658	3,658	3,658	3,658	3,658	3,658	3,658	3,658	3,658	4,546
R-squared	0.041	0.049	0.077	0.013	0.062	0.031	0.035	0.038	0.036	0.047	0.023	0.062
Obs level	Household	Household	Household	Household	Household	Household	Household	Household	Household	Household	Household	Household
Control Mean Dep. Var.	0.297	0.0706	0.300	0.0149	0.601	0.0215	0.227	0.155	0.121	0.268	0.0911	0.800
P-value of test	0.192	0.826	0.934	0.919	0.570	0.0947	0.541	0.945	0.949	0.454	0.232	0.0169

Notes: Dependent variables in columns 1-11 are indicator variables for household characteristics reported in vulnerability assessment (VA) survey determining eligibility for inclusion in sample, prior to household enrollment in study. Answering “yes” to any of these questions classifies a household as an “OVC” (orphans and vulnerable children) household that is eligible for sample inclusion. Dependent variable in Column 12 is an indicator that a household was successfully surveyed in the endline survey and included in this paper’s analyses (see Appendix section C.2 for details). “DEB” is indicator equal to one if household randomly assigned to “DEB” status in Randomization Stage 2, and zero otherwise. Coefficient on Treatment was pre-specified as of primary interest in this study. “Non-DEB” is defined analogously for “Non-DEB” status, and was pre-specified as of secondary interest in this study. All regressions control for matched pair fixed effects and for a community-level index of affectedness by Cyclone Idai. Standard errors clustered at the community level in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

E “First Stage” Impacts on Contacts with FCC Program

As a starting point for understanding any treatment effects, it is useful to examine impacts on outcomes measuring knowledge of, contact with, and services provided by the FCC local implementing partner (LIP) organization. While we are not conducting an instrumental variables (IV) estimation, these measures could be considered “first stage” outcomes that confirm and measure the extent to which the FCC program reached the intended beneficiaries. These outcomes come from the endline survey, reported by the primary household respondent. We examine an indicator for a household having heard of the LIP in their community, an indicator for a household having been visited by a Case Care Worker (CCW) of the LIP, and an indicator for a household having been referred to or received any services from the LIP in their community. This last indicator is constructed from several survey questions asking about services received from non-government organizations (NGOs), and which organization provided these services.

Regression results from the estimation of Equation C.1 for these first stage outcomes are shown in Table PAP4. Being a DEB leads to statistically higher rates of having heard of (15 percentage points), been contacted by (6.58 percentage points), or having received services referred by the LIP (11.1 percentage points). Non-DEB status also has a positive effect on these outcomes, indicating that LIPs reached households in treatment communities in general as well as directly enrolled beneficiaries. All coefficients on DEB and non-DEB status are statistically significant at the 1% level.

DEB households did have higher rates of contact with the FCC program than non-DEB households. For each outcome, coefficients on DEB status are larger in magnitude than the corresponding coefficient for non-DEBs. For the “visited by case worker” and “received service” regressions, the difference between the DEB and non-DEB coefficients are statistically significantly different from zero at conventional levels (p-values 0.040 and 0.003, respectively, reported in the bottom row of the table.)

These results indicate that the FCC program did differentially reach households in treatment communities than in control communities, and DEBs more than non-DEBs in treatment communities.⁹ That said, the contact and referral rates for DEBs are lower than we expected in advance. WEI/Bantwana reports (based on data collected from LIPs) that 77.0% of households assigned to DEB status were successfully administered a home visit by a CCW. By contrast, our estimates imply that only 13.9% of DEBs were contacted by LIPs, and only 21.2% were referred to any service by LIPs. It is possible that households are under-reporting the extent to which they had interactions with LIPs, perhaps because LIPs interacted with a different household member than the survey respondent, the survey

⁹Note each of the outcome variables have means that are nonzero in control communities. This is to be expected, because LIPs tend to be well-established organizations and have other activities separate from those they are contracted to undertake as part of the FCC program.

respondent had forgotten the interaction with the LIPs, or the survey respondent did not correctly report that the identity of the organization with which the household had a contact or referral.

Table PAP4: **Knowledge of, Contact with, and Services provided by LIPs**

	(1)	(2)	(3)
HYPOTHESIS:	P1	P1	P1
VARIABLES	Heard of FCC	Visited by Case Worker	Received Services
DEB	0.150*** (0.0252)	0.0658*** (0.0110)	0.111*** (0.0211)
Non-DEB	0.131*** (0.0282)	0.0351*** (0.0116)	0.0703*** (0.0209)
Observations	3,658	3,658	3,658
R-squared	0.123	0.072	0.101
Obs level	Household	Household	Household
Control Mean Dep. Var.	0.482	0.0563	0.100
P-value of test DEB = Non-DEB	0.328	0.0401	0.00307

Notes: Dependent variables are as follows. Column 1: indicator for having heard of the FCC local implementing partner (LIP) organization. Column 2: indicator for having been visited by the LIP Case Care Worker (CCW). Column 3: indicator for having received any services from the FCC program. “DEB” is indicator equal to one if household randomly assigned to “DEB” status in Randomization Stage 2, and zero otherwise. Coefficient on Treatment was pre-specified as of primary interest in this study. “Non-DEB” is defined analogously for “Non-DEB” status, and was pre-specified as of secondary interest in this study. All regressions control for matched pair fixed effects and for a community-level index of affectedness by Cyclone Idai. Standard errors clustered at the community level in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

F Primary Analysis

We now turn to tests of the primary hypotheses of this study: impacts on HIV testing. Results using Equation C.1 are presented in Table PAP5.

The coefficient on the pre-specified primary outcome of interest, the composite HIV testing measure (Column 1) is positive, but modest in size and not statistically significantly different from zero at conventional levels. The point estimate indicates a 2.57 percentage point increase in testing rates, relative to the 72.1% rate in control communities.

Coefficients on the pre-specified secondary outcomes, the HIV testing measures considered separately, are also small in magnitude and not statistically significantly different from zero at conventional levels. The point estimate of self-reported HIV testing (Column 2) is positive and similar in magnitude to the coefficient in Column (1). The point estimate of coupon based (directly observed) HIV testing (Column 3) is actually negative in sign.

By contrast, the coefficients on the non-DEB indicator (pre-specified as of secondary interest) in the three columns are all positive in magnitude, indicating a 2.56 – 4.55 percentage point increases in testing rates. The non-DEB coefficients are statistically significant at the 10% level in Column (1) for the composite measure of HIV testing. In Column (3), the non-DEB coefficient is statistically significantly different from the coefficient on the DEB indicator (p-value 0.0171, reported in the bottom row of the table).

It is additionally informative to compare our treatment effect estimate to expert predictions elicited in advance. Prior to our results being known, DellaVigna et al. collected forecasts from subject-matter experts of the treatment effect of being assigned to DEB status in a treatment community on the 12-month self-report of HIV testing.¹⁰ The mean expert prediction was 11.36 percentage points. Our actual treatment effect, 3.08 percentage points (Column 2), is substantially below the expert prediction: it is only 27.1% as large in magnitude, and a Wald test rejects the hypothesis of equality of the two at conventional levels (p-value < 0.0000).

In our pre-analysis plan, we stated that if results on HIV testing differed between the self-reported (Column 2) and directly observed (Column 3) measures of HIV testing, we would base substantive conclusions and policy recommendations on the findings that use the directly observed outcome. Prioritizing the result in Column (3) provides an even more pessimistic assessment of the performance of the FCC program in promoting HIV testing.

The modest size of the effect of DEB status, and the fact that non-DEB status may if anything have a larger positive effects on HIV testing, are a first indication that the FCC program appears to be having unintended consequences. To explore what these unintended consequences might be, we now turn to additional empirical estimates, which will be a series

¹⁰DellaVigna et al. elicited predictions from 73 experts, mostly in December 2019. The online survey eliciting predictions closed on January 3, 2020. This process was completely arms-length from us. We proposed five names of potential expert forecasters to DellaVigna et al. (2020), but had no knowledge of the identities of the ultimate set of expert forecasters.

of pre-specified secondary analyses.

Table PAP5: **HIV Testing**

	(1)	(2)	(3)
HYPOTHESIS:	P2	S0	S0
VARIABLES	Combined HIV Testing Measure	Self-Reported HIV Testing	Coupon Redemption HIV Testing
DEB	0.0257 (0.0199)	0.0308 (0.0245)	-0.0247 (0.0188)
Non-DEB	0.0410** (0.0202)	0.0455 (0.0277)	0.0256 (0.0213)
Observations	3,658	3,489	3,658
R-squared	0.031	0.034	0.058
Obs level	Household	Household	Household
Control Mean Dep. Var.	0.721	0.652	0.263
P-value of test DEB = Non-DEB	0.416	0.510	0.0171

Notes: Dependent variables are as follows. Column 1: indicator that either the coupon-based or self-reported HIV testing measures is equal to one, and zero otherwise. Column 2: indicator equal to one if someone in household self-reported in endline survey having gotten an HIV test in last 12 months, and zero otherwise. Column 3: indicator equal to one if someone in household got an HIV test at local health clinic (based on redemption of encouragement coupon for HIV testing), and zero otherwise. “DEB” is indicator equal to one if household randomly assigned to “DEB” status in Randomization Stage 2, and zero otherwise. Coefficient on Treatment was pre-specified as of primary interest in this study. “Non-DEB” is defined analogously for “Non-DEB” status, and was pre-specified as of secondary interest in this study. All regressions control for matched pair fixed effects and for a community-level index of affectedness by Cyclone Idai. Standard errors clustered at the community level in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

G Secondary Analyses

G.1 Knowledge of HIV/AIDS

In Table PAP6 we estimate Equation C.1 examining the impacts on a hypothesized mechanism: knowledge of HIV/AIDS and ART treatment. We asked respondents 33 HIV/AIDS knowledge questions, divided into thematic subgroups. We create indices for all 33 questions and subindices for the subgroups measuring the fraction of questions answered correctly. The indices summarizing HIV-related knowledge for adult respondents are summarized in Panel A. We examine an overall HIV knowledge index (covering all 33 questions), a general HIV knowledge subindex, a knowledge of correct forms of HIV transmission subindex, a belief in myths of HIV transmission subindex, a knowledge of protective methods against HIV subindex, and a knowledge of treatments for HIV subindex. These indices are defined such that an increase in the index is an improvement in HIV knowledge. Across these indices in Panel A, DEB status has no substantial impact, except for beliefs in HIV transmission myths (Column 4) which is negative and statistically significant at the 5% level. DEB status has a negative and statistically significant effect on beliefs in myth of HIV transmission., indicating that DEB households believe more in myths related to HIV transmission. Again, non-DEB status has no significant effect except in Column (4) with respect to myths of HIV transmission which is statistically significant at a 5% level. Non-DEB status has a statistically significantly negative impact which is comparable in size the effect of DEB status on believing in myths related to HIV transmission.

To better understand what is driving the effects of these results, Panels B through F of Table PAP6 examine effects on individual subcomponents for each index in panel A. There are a variety of effects of DEB and non-DEB status on individual knowledge questions, both positive and negative. Of interest are the subcomponents displayed in Panel D for the transmission myths index. These questions all ask whether HIV can be transmitted in certain ways, all of which are *not* transmission channels (in other words, correct answers to these questions are always “no”): mosquito bites, shaking hands, kissing, sharing food, or witchcraft. DEB status leads to a increase in beliefs that HIV can be transmitted by shaking hands, and this effect is statistically significantly different from zero at the 5% level. There are statistically insignificant increases in incorrect beliefs that HIV can be transmitted by kissing, sharing food, or through witchcraft or supernatural means.

Table PAP6: **HIV-Related Knowledge**

Panel A. Knowledge Indices						
HYPOTHESIS:	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	S3	S3	S3	S3	S3	S3
	HIV Knowledge Index	General HIV Knowledge Index	Correct Methods of Transmission Index	Transmission Myth Index	Protection Methods Index	Knowledge about HIV Treatment Index
DEB	-0.00358 (0.00823)	-0.00247 (0.00982)	-0.00372 (0.0134)	-0.0352** (0.0148)	0.00537 (0.00926)	0.00622 (0.00958)
Non-DEB	-0.00391 (0.00958)	-0.00225 (0.0100)	-0.0102 (0.0136)	-0.0438** (0.0177)	0.000786 (0.00993)	0.0168 (0.0101)
Observations	3,940	3,940	3,940	3,940	3,940	3,940
R-squared	0.063	0.054	0.040	0.072	0.052	0.067
Obs level	Adult	Adult	Adult	Adult	Adult	Adult
Control Mean Dep. Var.	0.756	0.623	0.831	0.747	0.823	0.772
P-value of test	0.971	0.975	0.621	0.568	0.696	0.247
DEB = Non-DEB						

Notes: Dependent variables are as follows. Column 1: index of overall HIV knowledge. Column 2: index of general HIV knowledge. Column 3: index of correct methods of HIV transmission. Column 4: index of beliefs in myths about HIV transmission. Column 5: index of knowledge of protection methods against HIV. Column 6: index of knowledge of HIV/AIDS treatment. “DEB” is indicator equal to one if household randomly assigned to “DEB” status in Randomization Stage 2, and zero otherwise. Coefficient on Treatment was pre-specified as of primary interest in this study. “Non-DEB” is defined analogously for “Non-DEB” status, and was pre-specified as of secondary interest in this study. All regressions control for matched pair fixed effects and for a community-level index of affectedness by Cyclone Idai. Standard errors clustered at the community level in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Panel B. Components of General HIV Knowledge Index							
HYPOTHESIS:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	S3	S3	S3	S3	S3	S3	S3
	Heard of HIV	Possible for Infected Person to Look Healthy	Possible for Infected Person to Feel Healthy	HIV is Curable	Untreated HIV Leads to AIDS	Length for Untreated HIV to AIDS	Length of Survival for Untreated AIDS
DEB	0.00622 (0.00655)	0.00562 (0.0121)	0.000181 (0.0113)	0.0234 (0.0228)	0.0189* (0.0102)	0.0749 (0.0893)	-0.00803 (0.114)
Non-DEB	0.00778 (0.00673)	0.0273*** (0.0101)	0.0184 (0.0115)	0.0283 (0.0263)	0.00348 (0.0109)	-0.0588 (0.0966)	-0.0670 (0.136)
Observations	3,940	3,614	3,601	3,330	3,146	1,637	1,767
R-squared	0.028	0.028	0.034	0.032	0.044	0.249	0.142
Obs level	Adult	Adult	Adult	Adult	Adult	Adult	Adult
Control Mean Dep. Var.	0.968	0.934	0.937	0.175	0.958	1.490	1.454
P-value of test	0.820	0.0460	0.0485	0.781	0.136	0.0451	0.540
DEB = Non-DEB							

Notes: Dependent variables are as follows. Column 1: indicators for having heard of HIV. Column 2: indicator for believing an HIV-infected person can look healthy. Column 3: indicator for believing an HIV-infected person can feel healthy. Column 4: indicator for believing HIV is curable. Column 5: indicator for believing untreated HIV leads to AIDS. Column 6: indicator for correctly knowing the length of time it takes for untreated HIV to become AIDS. Column 7: indicator for correctly knowing the length of survival for untreated AIDS. “DEB” is indicator equal to one if household randomly assigned to “DEB” status in Randomization Stage 2, and zero otherwise. Coefficient on Treatment was pre-specified as of primary interest in this study. “Non-DEB” is defined analogously for “Non-DEB” status, and was pre-specified as of secondary interest in this study. All regressions control for matched pair fixed effects and for a community-level index of affectedness by Cyclone Idai. Standard errors clustered at the community level in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Panel C. Components of Correct Methods of Transmission Index					
HYPOTHESIS:	(1)	(2)	(3)	(4)	(5)
VARIABLES	S3	S3	S3	S3	S3
	HIV Transmitted by Sexual Behavior	HIV Transmitted by Blood Clots	HIV Transmitted via Pregnancy	HIV Transmitted via Child Delivery	HIV Transmitted by Breastfeeding
DEB	0.00738 (0.00873)	0.00748 (0.00764)	0.0312** (0.0122)	-0.00429 (0.0143)	0.00681 (0.0125)
Non-DEB	-0.00254 (0.00859)	0.00847 (0.00850)	0.0383*** (0.0123)	0.0254 (0.0171)	0.00491 (0.0136)
Observations	3,619	3,564	3,558	3,345	3,457
R-squared	0.027	0.038	0.037	0.054	0.040
Obs level	Adult	Adult	Adult	Adult	Adult
Control Mean Dep. Var.	0.961	0.952	0.919	0.873	0.903
P-value of test	0.247	0.921	0.372	0.0594	0.900
DEB = Non-DEB					

Notes: Dependent variables are as follows. Column 1: indicator for knowing HIV can be transmitted by sexual behavior. Column 2: indicator for knowing HIV can be transmitted by contact with blood. Column 3: indicator for knowing HIV can be transmitted from mother to child via pregnancy. Column 4: indicator for knowing HIV can be transmitted from mother to child via delivery. Column 5: indicator for knowing HIV can be transmitted from mother to child via breastfeeding. “DEB” is indicator equal to one if household randomly assigned to “DEB” status in Randomization Stage 2, and zero otherwise. Coefficient on Treatment was pre-specified as of primary interest in this study. “Non-DEB” is defined analogously for “Non-DEB” status, and was pre-specified as of secondary interest in this study. All regressions control for matched pair fixed effects and for a community-level index of affectedness by Cyclone Idai. Standard errors clustered at the community level in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Panel D. Components of Transmission Myths Index					
HYPOTHESIS:	(1)	(2)	(3)	(4)	(5)
VARIABLES	S3	S3	S3	S3	S3
	HIV Transmitted by Mosquito Bites	HIV Transmitted by Hand-Shakes with Infected People	HIV Transmitted by Kissing Infected People	HIV Transmitted by Sharing Food with Infected People	HIV Transmitted via Witchcraft or Supernatural
DEB	-0.00410 (0.0180)	0.0207** (0.0103)	0.0179 (0.0159)	0.0125 (0.0114)	0.0246 (0.0159)
Non-DEB	0.0154 (0.0227)	0.0215* (0.0110)	-0.0102 (0.0166)	0.0139 (0.0115)	0.0489*** (0.0182)
Observations	3,260	3,418	3,209	3,430	3,383
R-squared	0.037	0.026	0.031	0.034	0.107
Obs level	Adult	Adult	Adult	Adult	Adult
Control Mean Dep. Var.	0.256	0.0613	0.176	0.0835	0.109
P-value of test	0.464	0.950	0.0972	0.895	0.0865
DEB = Non-DEB					

Notes: Dependent variables are as follows. Column 1: indicator for believing HIV can be transmitted via mosquito bites. Column 2: indicator for believing HIV can be transmitted via handshakes with HIV-infected persons. Column 3: indicator for believing HIV can be transmitted via kissing with HIV-infected persons. Column 4: indicator for believing HIV can be transmitted via sharing food with HIV-infected persons. Column 5: indicator for believing HIV can be transmitted via witchcraft or supernatural events. “DEB” is indicator equal to one if household randomly assigned to “DEB” status in Randomization Stage 2, and zero otherwise. Coefficient on Treatment was pre-specified as of primary interest in this study. “Non-DEB” is defined analogously for “Non-DEB” status, and was pre-specified as of secondary interest in this study. All regressions control for matched pair fixed effects and for a community-level index of affectedness by Cyclone Idai. Standard errors clustered at the community level in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Panel E. Components of Protection Methods Index						
HYPOTHESIS:	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	S3	S3	S3	S3	S3	S3
	Heard of Condoms	Knows Where to Buy Condoms	Knows Where to Obtain Free Condoms	Condoms Reduce HIV Transmission	Reduce HIV Risk by Monogamous Sex w/ Uninfected Person	Reduce HIV Risk by not having Sex w/ Infected Person
DEB	0.00808 (0.00967)	-0.0308** (0.0133)	-0.0182* (0.0108)	0.0208** (0.00972)	0.0293** (0.0127)	-0.00568 (0.0117)
Non-DEB	0.0259*** (0.00798)	-0.0470*** (0.0158)	-0.0283** (0.0116)	0.0114 (0.0116)	0.0260** (0.0113)	0.00614 (0.0137)
Observations	3,940	3,711	3,708	3,358	3,473	3,403
R-squared	0.027	0.027	0.041	0.037	0.039	0.069
Obs level	Adult	Adult	Adult	Adult	Adult	Adult
Control Mean Dep. Var.	0.936	0.808	0.898	0.919	0.886	0.845
P-value of test	0.0550	0.385	0.467	0.402	0.834	0.476
DEB = Non-DEB						

Notes: Dependent variables are as follows. Column 1: indicator for having heard of condoms. Column 2: indicator for knowing where to buy condoms. Column 3: indicator for knowing where to obtain free condoms. Column 4: indicator for knowing condoms reduce HIV transmission. Column 5: indicator for knowing they can reduce HIV risk by having monogamous sex with an uninfected person. Column 6: indicator for knowing they can reduce HIV risk by not having sex with an HIV-infected person. “DEB” is indicator equal to one if household randomly assigned to “DEB” status in Randomization Stage 2, and zero otherwise. Coefficient on Treatment was pre-specified as of primary interest in this study. “Non-DEB” is defined analogously for “Non-DEB” status, and was pre-specified as of secondary interest in this study. All regressions control for matched pair fixed effects and for a community-level index of affectedness by Cyclone Idai. Standard errors clustered at the community level in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Panel F. Components of Knowledge about HIV Treatment Index									
HYPOTHESIS:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	S3	S3	S3	S3	S3	S3	S3	S3	S3
	Effective HIV Treatment Exists	Know Name of Treatment	Know of Medicines Used for HIV/AIDS	Infected Persons Should Take ART regardless of Feeling Sick	Know Where to Receive HIV Treatment	Think Treatment Expensive at Local Health Center	Treatment can Help Infected Persons Stay Healthy	Treatment can Help Prolong Infected Persons' Life	Treatment Prevents HIV Transmission
DEB	0.0337** (0.0158)	-0.0851*** (0.0240)	0.00319 (0.0156)	0.0526*** (0.0195)	0.0389*** (0.00956)	0.0157 (0.0154)	0.0182 (0.0163)	0.00702 (0.0167)	-0.0411 (0.0286)
Non-DEB	0.0432*** (0.0131)	-0.0340 (0.0269)	0.00796 (0.0134)	0.0566*** (0.0196)	0.0402*** (0.0104)	0.00816 (0.0140)	0.0299** (0.0140)	0.0178 (0.0130)	-0.0273 (0.0288)
Observations	3,597	3,311	3,820	3,600	3,821	3,546	3,668	3,619	3,293
R-squared	0.046	0.054	0.031	0.050	0.030	0.083	0.054	0.051	0.135
Obs level	Adult	Adult	Adult	Adult	Adult	Adult	Adult	Adult	Adult
Control Mean Dep. Var.	0.903	0.678	0.859	0.867	0.919	0.109	0.890	0.905	0.693
P-value of test	0.336	0.0202	0.672	0.767	0.876	0.547	0.300	0.276	0.526
DEB = Non-DEB									

Notes: Dependent variables are as follows. Column 1: indicator for knowing there is an effective HIV treatment. Column 2: indicator for knowing the name of ART. Column 3: indicator for knowing the name of medicines used to fight HIV/AIDS. Column 4: indicator for knowing an HIV-infected person should take ART regardless of feeling sick. Column 5: indicator for knowing where to receive HIV treatment. Column 6: indicator for thinking HIV treatment is expensive at local health center. Column 7: indicator for knowing treatment can help an HIV-infected person stay healthy. Column 8: indicator for knowing treatment can prolong an HIV-infected person's life. Column 9: indicator for knowing treatment prevents HIV transmission. "DEB" is indicator equal to one if household randomly assigned to "DEB" status in Randomization Stage 2, and zero otherwise. Coefficient on Treatment was pre-specified as of primary interest in this study. "Non-DEB" is defined analogously for "Non-DEB" status, and was pre-specified as of secondary interest in this study. All regressions control for matched pair fixed effects and for a community-level index of affectedness by Cyclone Idai. Standard errors clustered at the community level in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

G.2 HIV-Related Stigmatizing Attitudes

As another possible mechanism driving our findings on HIV testing, we examine stigmatizing attitudes related to HIV/AIDS. This is captured through an HIV/AIDS stigma index composed of four components. We report the regression results for these outcomes using Equation C.1 in Table PAP7. In the regression for the overall stigma index, the coefficient on DEB status is negative and statistically significant at the 5% significance level. While none of the coefficients on DEB status for individual stigma questions (columns 2-5) are statistically significantly different from zero, the coefficient on DEB status in the regression for “Would not keep it a secret if a family member had HIV” is negative and the large in magnitude. Additionally, for this outcome the coefficients for DEB and non-DEB status are statistically different at the 10% level (found at the bottom of the table). This is suggestive evidence, indicating that the increase in stigmatizing attitudes associated with DEB status is driven by increased reported desires to keep a family member’s HIV-positive status secret. Non-DEB status does not have a statistically significant impact on the stigma index, but one component (“Willing to buy groceries from an HIV infected person”) is negative and statistically significantly at a 5% level.

Table PAP7: **HIV-Related Stigmatizing Attitudes**

	(1)	(2)	(3)	(4)	(5)
HYPOTHESIS:	S3	S3	S3	S3	S3
VARIABLES	HIV Stigma Attitude Index	Buy Groceries from Infected Person	Not Keep Infected Family Member a Secret	Care for Infected Family Member in Own Home	Infected Teacher Should be Allowed to Teach
DEB	-0.0124** (0.00496)	-0.0132 (0.0102)	-0.0234 (0.0185)	-0.00495 (0.00318)	-0.00330 (0.00644)
Non-DEB	-0.00914 (0.00636)	-0.0285** (0.0122)	0.00480 (0.0203)	-0.00466 (0.00364)	0.000830 (0.00572)
Observations	3,820	3,756	3,777	3,801	3,748
R-squared	0.026	0.039	0.049	0.017	0.028
Obs level	Adult	Adult	Adult	Adult	Adult
Control Mean Dep. Var.	0.746	0.858	0.168	0.993	0.965
P-value of test DEB = Non-DEB	0.598	0.290	0.0796	0.955	0.612

Notes: Dependent variables are as follows. Column 1: fraction of four questions on HIV-related stigma answered in a non-stigmatizing way. Columns 2-5: for each separate question on HIV-relates stigmatizing attitudes, indicator equal to one if answered in a non-stigmatizing way, and zero otherwise. For full detail on each stigmatizing attitudes question, see Appendix Section E. “DEB” is indicator equal to one if household randomly assigned to “DEB” status in Randomization Stage 2, and zero otherwise. Coefficient on Treatment was pre-specified as of primary interest in this study. “Non-DEB” is defined analogously for “Non-DEB” status, and was pre-specified as of secondary interest in this study. All regressions control for matched pair fixed effects and for a community-level index of affectedness by Cyclone Idai. Standard errors clustered at the community level in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

G.3 Positive HIV-Related Attitudes

We now examine the impact of DEB and non-DEB status on other pre-specified secondary outcomes. In Table PAP8, we examine the impact of DEB and non-DEB status on positive attitudes related to HIV using Equation C.1. DEB and non-DEB status does not have a statistically significant impact on all three measures of positive attitudes, with the notable exception that DEB negatively and statistically significantly effects the belief that a woman is justified not having sex with a husband who is having sex with other people (Column 3). This provides no evidence that the FCC program changes positive attitudes towards HIV. Rather, it is suggestive that some positive attitudes towards HIV worsened with exposure to the FCC program.

Table PAP8: **Positive HIV-Related Attitudes**

	(1)	(2)	(3)
HYPOTHESIS:	S3	S3	S3
VARIABLES	12-14 Year Olds be Taught Condoms Prevent HIV	Justified for Woman to Ask Husband with STI to Use a Condom	Justified for Woman to Refuse Sex with Husband who is Sleeping with Others
DEB	0.0326 (0.0263)	0.00526 (0.0192)	-0.0398* (0.0229)
Non-DEB	0.0195 (0.0284)	-0.00419 (0.0204)	-0.0342 (0.0274)
Observations	3,501	3,434	3,611
R-squared	0.054	0.045	0.076
Obs level	Adult	Adult	Adult
Control Mean Dep. Var.	0.408	0.769	0.542
P-value of test	0.583	0.647	0.812
DEB = Non-DEB			

Notes: Dependent variables are as follows. Column 1: indicator for believing 12-14 year olds should be taught condoms prevent HIV. Column 2: indicator for believing it is justified for a woman to ask her husband with an STI to use a condom. Column 3: indicator for believing it is justified for a woman to refuse sex with her husband who is sleeping with other people. “DEB” is indicator equal to one if household randomly assigned to “DEB” status in Randomization Stage 2, and zero otherwise. Coefficient on Treatment was pre-specified as of primary interest in this study. “Non-DEB” is defined analogously for “Non-DEB” status, and was pre-specified as of secondary interest in this study. All regressions control for matched pair fixed effects and for a community-level index of affectedness by Cyclone Idai. Standard errors clustered at the community level in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

G.4 Sexual Behavior

Using Equation C.1, we estimate the effect of DEB and non-DEB status on measures of sexual behavior. These eight outcome measures are displayed in Table PAP9. DEB status has a negative and statistically significant impact on the number of sexual partners in the past 12 months (Column 1). Additionally, DEB status has a statistically significant positive impact on the likelihood one's sexual partners has been tested for HIV (Column 2). But DEB status also has a negative and statistically significant effect on never being paid for sex (indicating they have been paid for sex), as shown in Column (8). Non-DEB status has a negative statistically significant effect on the number of sexual partners in the past 12 months (Column 1), as well as positive statistically significant effects on ensuring their sexual partner has been tested for HIV (Column 2), always using condoms during sex (Column 5) and never having sex with a male partner for male respondents (Column 6). But non-DEB status also has a negative and statistically significant effect on never having sex with an HIV infected partner (Column 3) and never paying for sex (Column 8). These findings suggest that the FCC program had a mixed effect on sexual behavior outcomes, and did not substantially improve sexual behavior of participants.

Table PAP9: **Impact on Sexual Behavior**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
HYPOTHESIS:	S3	S3	S3	S3	S3	S3	S3	S3
VARIABLES	Count of Sexual Partners in Past 12 Months	Sexual Partners Tested for HIV	Never had Sex w/ Infected Person	Currently Own Condoms	Always Use Condoms During Sex	[Men Only]: Never had Male Partner	Never Paid for Sex	Never been Paid for Sex
DEB	-0.0936*** (0.0304)	0.0366* (0.0218)	0.000914 (0.00666)	0.00533 (0.0191)	0.0144 (0.0115)	0.000160 (0.00987)	-0.000520 (0.00838)	-0.0199* (0.0104)
Non-DEB	-0.0792** (0.0366)	0.0545** (0.0233)	-0.0167* (0.00960)	-0.0118 (0.0198)	0.0224* (0.0134)	0.0183* (0.00917)	-0.0252* (0.0137)	-0.00326 (0.0123)
Observations	3,889	3,336	3,864	3,891	3,800	1,184	3,801	3,798
R-squared	0.012	0.061	0.026	0.047	0.042	0.031	0.062	0.047
Obs level	Adult	Adult	Adult	Adult	Adult	Adult	Adult	Adult
Control Mean Dep. Var.	1.122	0.575	0.951	0.224	0.0939	0.975	0.916	0.912
P-value of test	0.696	0.402	0.0787	0.350	0.596	0.143	0.143	0.211
DEB = Non-DEB								

Notes: Dependent variables are as follows. Column 1: count of the number of sexual partners in the last 12 months. Column 2: indicator for sexual partner having tested for HIV. Column 3: indicator for never having had sex with an HIV-infected person. Column 4: indicator for currently owning condoms. Column 5: indicator for always using condoms during sex. Column 6: (for men only; set to missing for women) indicator that respondent has never had a male sex partner. Column 7: indicator for having never paid for sex. Column 8: indicator for having never having been paid for sex. “DEB” is indicator equal to one if household randomly assigned to “DEB” status in Randomization Stage 2, and zero otherwise. Coefficient on Treatment was pre-specified as of primary interest in this study. “Non-DEB” is defined analogously for “Non-DEB” status, and was pre-specified as of secondary interest in this study. All regressions control for matched pair fixed effects and for a community-level index of affectedness by Cyclone Idai. Standard errors clustered at the community level in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

G.5 Other Secondary Analyses

Table PAP10 examines the impact of DEB and non-DEB status on school attendance using Equation C.1. In Table PAP11 we examine other pre-specified secondary outcomes related to welfare (assets and life satisfaction) and ART adherence (ART usage and high ART adherence) using Equation C.1. For none of these outcomes does DEB status have an effect that is large in magnitude nor statistically significantly different from zero at conventional levels. The same holds true for non-DEB status, except for household asset index (Column 2). These two tables provide no evidence that the FCC program improved school attendance, measures of welfare nor utilization of health care services compared to control communities.

Table PAP10: Impacts on School Attendance	
	(1)
HYPOTHESIS:	S1
VARIABLES	Self-Reported School Attendance
DEB	-0.0156 (0.0106)
Non-DEB	0.00101 (0.0123)
Observations	8,662
R-squared	0.035
Obs level	Child
Control Mean Dep. Var.	0.862
P-value of test DEB = Non-DEB	0.171

Notes: Dependent variables are as follows. Column 1: indicator for self-reporting that school age child (ages 6 – 17) are currently attending school. “DEB” is indicator equal to one if household randomly assigned to “DEB” status in Randomization Stage 2, and zero otherwise. Coefficient on Treatment was pre-specified as of primary interest in this study. “Non-DEB” is defined analogously for “Non-DEB” status, and was pre-specified as of secondary interest in this study. All regressions control for matched pair fixed effects and for a community-level index of affectedness by Cyclone Idai. Standard errors clustered at the community level in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Table PAP11: **Impacts on Outcomes of Secondary Interest**

	Welfare Outcomes		Health Care Utilization if HIV-Positive	
	(1)	(2)	(3)	(4)
HYPOTHESIS:	S2	S2	S2	S2
VARIABLES	Life Satisfaction	Household Asset Index	ART Usage	High ART Adherence
DEB	0.0785 (0.171)	-0.132 (0.105)	-0.0222 (0.0140)	-0.0118 (0.0328)
Non-DEB	0.237 (0.180)	-0.167* (0.0959)	0.00872 (0.0105)	-0.0354 (0.0354)
Observations	3,935	3,658	656	614
R-squared	0.100	0.210	0.065	0.100
Obs level	Adult	Household	Individual	Individual
Control Mean Dep. Var.	4.672	0.595	0.977	0.834
P-value of test	0.142	0.609	0.0629	0.511
DEB = Non-DEB				

Notes: Dependent variables are as follows. Column 1: On a ladder from 1 to 10, with 10 as the best life, where does the respondent place themselves on the ladder. Column 2: the first principal component of ownership of 14 different household assets. Column 3: indicator for using ART if HIV-positive. Column 4: indicator of having not missed a day of using ART in the past 30 days in HIV-positive. “DEB” is indicator equal to one if household randomly assigned to “DEB” status in Randomization Stage 2, and zero otherwise. Coefficient on Treatment was pre-specified as of primary interest in this study. “Non-DEB” is defined analogously for “Non-DEB” status, and was pre-specified as of secondary interest in this study. All regressions control for matched pair fixed effects and for a community-level index of affectedness by Cyclone Idai. Standard errors clustered at the community level in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

H Spillovers from DEB and non-DEB Households

We are also interested in spillovers from direct beneficiary households (DEBs) to non-direct beneficiaries (non-DEBs). One key channel through which spillovers may occur is information: DEBs may share information with proximate non-DEBs. In addition, stigma may be a key mechanism, if reduced stigma by DEBs leads non-DEBs in proximity to them to be more willing to take up HIV testing. This analysis seeks evidence of spillovers via geographic proximity and social network ties.

Building on Equation C.1, we will use the following equations to estimate spillovers, separately for social and geographic proximity:

$$\mathcal{Y}_{ijs} = \alpha + \delta\mathcal{B}_{ijs} + \sigma\mathcal{N}_{ijs} + \nu\text{Enroll}S_{ijs} + \omega\mathcal{S}_{ijs} + \gamma_s + \varepsilon_{ijs}, \quad (\text{H.1})$$

$$\begin{aligned} \mathcal{Y}_{ijs} = \alpha + \delta\mathcal{B}_{ijs} + \sigma\mathcal{N}_{ijs} + \mu\text{EnrollDist}1_{ijs} + \zeta\text{EnrollDist}2_{ijs} + \\ \kappa\text{Dist}1_{ijs} + \lambda\text{Dist}2_{ijs} + \gamma_s + \varepsilon_{ijs}. \end{aligned} \quad (\text{H.2})$$

Compared to regression Equation C.1, regression equations H.1 and H.2 add estimates of spillover impacts on households of being socially and geographically proximate to other households that were directly enrolled in the FCC program. $\text{Enroll}S_{ijs}$ is a measure of the extent to which members of one’s social network were randomly assigned to direct program enrollment.¹¹ $\text{EnrollDist}1_{ijs}$ is the number of directly enrolled beneficiaries within a “close” radius of household i , while $\text{EnrollDist}2_{ijs}$ is similar but for direct beneficiaries in an “intermediate” distance.¹²

In each of these regression specifications, it is also important to control for variables representing the household’s general social connectedness and geographic proximity to other surveyed households, because we would expect that households with larger social networks or in more densely-populated neighborhoods to have more directly-enrolled individuals in their social networks or in geographic proximity. Failing to control for such variables would lead to biased estimates of the coefficients on $\text{Enroll}S_{ijs}$ in Equation H.1, and on $\text{EnrollDist}1_{ijs}$, and $\text{EnrollDist}2_{ijs}$ in Equation H.2. Therefore, in Equation H.1, we control for \mathcal{S}_{ijs} , a measure of the extent to which members of one’s social network are included in the survey sample. In Equation H.2, we control for $\text{Dist}1_{ijs}$ (the number of surveyed households within a “close” radius of household i) and $\text{Dist}2_{ijs}$ (similar but for surveyed households in an “intermediate” distance).

¹¹The number of social network members enrolled as direct beneficiaries is typically in the single digits. We specify this variable simply as the count (number) of social network members enrolled as direct beneficiaries. In the analysis sample, the number of social network members who are DEBs has mean 0.260 and standard deviation 0.781.

¹²The definition of “close” and “intermediate” distances are as follows, with mean and standard deviation of the number of DEBs: close 0-200 meters (mean 2.08, std.dev. 3.17), intermediate 200-500 meters (mean 6.37, std. dev. 7.41). “Far” distance is the excluded or reference category.

In Equations H.1 and H.2, the coefficients on $EnrollS_{ijs}$, $EnrollDist1_{ijs}$, and $EnrollDist2_{ijs}$ quantify particular types of spillover effects. The coefficient $EnrollS_{ijs}$ isolates spillovers that operate through social network connections. It represents the impact of having additional social network members randomly assigned as DEBs.

Spillovers operating via geographic proximity are revealed in the coefficients on the interaction terms with the $EnrollDist1_{ijs}$ and $EnrollDist2_{ijs}$ variables.¹³ The coefficient μ on $EnrollDist1_{ijs}$ is the impact of having more geographically close individuals randomly assigned as DEBs. We would expect this coefficient to be larger in magnitude than the coefficients ζ the term corresponding to “intermediate” distance. These spillover coefficients are all credibly interpreted as causal effects. Because direct enrollment in FCC is randomly assigned, the extent to which households have directly enrolled households in their social network or geographically proximate is also random.¹⁴

Hypothesis tests regarding spillovers from DEB to non-DEB households refer to coefficients ν , μ , and ζ in these regressions for the relevant outcome variable.

Regression results from the estimation of Equations H.1 and H.2 are presented in Table PAP12. None of the coefficients representing spillovers (on the variables “Number of DEBs in Social Network”, “Number of DEBs within 0-200 meters”, and “Number of DEBs within 200-500 meters”) are large in magnitude or statistically significantly different from zero. These results provide no indication of substantial spillovers between DEB and non-DEB households leading to differences in HIV testing via social or geographic proximity.

¹³Measuring geographic spillovers in this manner corresponds to the widely emulated method used in Miguel and Kremer (2004) to capture health spillovers of deworming in Kenya.

¹⁴It is reasonable to presume that spillover effects differ between households who themselves were and were not randomly assigned to direct FCC enrollment. In particular, we might expect spillover impacts to be larger for households not directly enrolled. We will also investigate such heterogeneity in the magnitude of spillovers. In exploratory analyses, we would estimate regression specifications that add interaction terms with the $EnrollS_{ijs}$, $EnrollDist1_{ijs}$, and $EnrollDist2_{ijs}$ variables, on the one hand, with the indicators B_{ijs} and N_{ijs} on the other. A comparison of corresponding coefficients on the B_{ijs} and N_{ijs} interaction terms would reveal whether spillovers had a greater impact among the directly enrolled compared to the non-directly-enrolled.

Table PAP12: **Spillover Effects on HIV Testing**

	(1)	(2)
HYPOTHESIS:	S4	S4
VARIABLES	Spillover - Social Proximity	Spillover - Geographic Proximity
DEB	0.0522** (0.0261)	0.0272 (0.0275)
Non-DEB	0.0332 (0.0234)	0.0435 (0.0287)
# of DEB Households Connected With	0.00699 (0.0187)	
# of Households Connected With	0.00438 (0.00499)	
# of DEB Households in 200 Meters		-0.00125 (0.00429)
# of DEB Households in 200 to 500 Meters		-0.000121 (0.00246)
# of Households in 200 Meters		0.00105 (0.00118)
# of Households in 200 to 500 Meters		0.000748 (0.000620)
Observations	2,085	3,648
R-squared	0.038	0.032
Obs level	Household	Household
Control Mean Dep. Var.	0.721	0.721
P-value of test DEB = Non-DEB	0.528	0.389

Notes: Dependent variables are as follows. Column 1 – 2: indicator for self-reporting taking an HIV test in the past 12 months. “DEB” is indicator equal to one if household randomly assigned to “DEB” status in Randomization Stage 2, and zero otherwise. Coefficient on Treatment was pre-specified as of primary interest in this study. “Non-DEB” is defined analogously for “Non-DEB” status, and was pre-specified as of secondary interest in this study. All regressions control for matched pair fixed effects and for a community-level index of affectedness by Cyclone Idai. Standard errors clustered at the community level in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

I Randomization Stage 3 Treatments

The purpose of the Randomization Stage 3 treatments is to understand the complementary between the FCC program, on the one hand, and more targeted information interventions and HIV testing incentives, on the other.¹⁵ They also help reveal the potential mechanisms behind our primary results above. That said, the main effect of the Randomization Stage 3 treatments themselves is also of interest. The following regression estimates the effects of the Randomization Stage 3 treatments described in Section A.2.7:

$$\begin{aligned} \mathcal{Y}_{ijs} = & \alpha + \beta \mathcal{B}_{ijs} + \lambda \mathcal{N}_{ijs} + \rho \mathit{InfoHIV}_{ijs} + \tau \mathit{InfoART}_{ijs} + \\ & \theta \mathit{InfoHIV/ART}_{ijs} + \pi \mathit{AntiStigma}_{ijs} + \psi \mathit{HighTestPayment}_{ijs} + \\ & \gamma_s + \varepsilon_{ijs}. \end{aligned} \quad (\text{I.1})$$

\mathcal{Y}_{ijs} is the post-treatment outcome for household i in community j in stratification cell (matched pair) s . The outcome variable for this analysis is the objective (coupon-redemption based) measure of household HIV testing. \mathcal{B}_{ijs} , \mathcal{N}_{ijs} , γ_s , and γ_s are the same as in previous regressions.

$\mathit{InfoHIV}_{ijs}$ is an indicator equal to one if a household was randomly assigned to receiving the treatment providing information on HIV/AIDS, and zero otherwise. $\mathit{InfoART}_{ijs}$ and $\mathit{AntiStigma}_{ijs}$ are defined similarly, but for the randomly assigned ART information and anti-stigma treatments, respectively. $\mathit{InfoHIV/ART}_{ijs}$ is the indicator for receiving both the HIV and ART information treatments. $\mathit{HighTestPayment}_{ijs}$ is an indicator for being offered the higher-value coupon for receiving an HIV test.

The coefficients ρ , τ , θ , π , and ψ are the intent to treat (ITT) effects of household assignment to the corresponding treatment. These can be interpreted as causal effects because each is randomly assigned.

The hypothesis tests regarding the impact of the Randomization Stage 3 treatments refer to coefficients ρ , τ , θ , π , and ψ in this regression.

Analyses of complementarity between the FCC program and the more targeted Randomization Stage 3 treatments are conducted using the following regression equation, which is a modification of Equation I.1:

¹⁵Please see the pre-analysis plan on our AEA RCT Registry record for a full description of the Randomization Stage 3 treatments.

$$\begin{aligned}
\mathcal{Y}_{ijs} = & \alpha + \beta \mathcal{B}_{ijs} + \lambda \mathcal{N}_{ijs} + \rho \text{InfoHIV}_{ijs} + \\
& \tau \text{InfoART}_{ijs} + \theta \text{InfoHIV/ART}_{ijs} + \pi \text{AntiStigma}_{ijs} + \\
& \psi \text{HighTestPayment}_{ijs} + \delta \mathcal{B}_{ijs} \times \text{InfoHIV}_{ijs} + w \mathcal{B}_{ijs} \times \text{InfoART}_{ijs} + \\
& \xi \mathcal{B}_{ijs} \times \text{InfoHIV/ART}_{ijs} + \omega \mathcal{B}_{ijs} \times \text{AntiStigma}_{ijs} + \\
& \mu \mathcal{B}_{ijs} \times \text{HighTestPayment}_{ijs} + \sigma \mathcal{N}_{ijs} \times \text{InfoHIV}_{ijs} + \\
& \phi \mathcal{N}_{ijs} \times \text{InfoART}_{ijs} + \eta \mathcal{N}_{ijs} \times \text{InfoHIV/ART}_{ijs} + \\
& \nu \mathcal{N}_{ijs} \times \text{AntiStigma}_{ijs} + \nu \mathcal{N}_{ijs} \times \text{HighTestPayment}_{ijs} + \\
& \gamma_s + \varepsilon_{ijs}.
\end{aligned} \tag{I.2}$$

This regression is similar to Equation I.1, but adds interaction terms between \mathcal{B}_{ijs} and each of the Randomization Stage 3 treatments, as well as interaction terms between \mathcal{N}_{ijs} and each of the Randomization Stage 3 treatments. These interaction terms reveal whether the effects of the Randomization Stage 3 treatments differ for DEB and non-DEB households, compared to the effect in control communities. Because of the inclusion of these interaction terms, the coefficients ρ , τ , θ , π , and ψ represent the difference between the ITT effects of assignment to the treatments for households in control communities.

The coefficients δ , w , ζ , ω , and μ represent the difference in the ITT effect of the Randomization Stage 3 treatments for DEB households, compared to the effect for households in control communities. The hypothesis tests regarding how impacts of the Randomization Stage 3 treatments differ for DEB households refer to these coefficients.

The coefficients σ , ϕ , η , ν , and ν represent the difference in the ITT effect of the Randomization Stage 3 treatments for non-DEB households, compared to the effect for households in control communities. The hypothesis tests regarding how impacts of the Randomization Stage 3 treatments differ for non-DEB households refer to these coefficients.

Results from estimating equations I.1 and I.2 are presented in Table PAP13. The outcome of interest in directly observed HIV Testing (the only outcome collected after the end-line survey and thus after the implementation of the Randomization Stage 3 treatments.). Estimation of the average effects across the full sample (Equation I.1, Column (1)) reveals that only the high-value coupon has an effect on HIV testing rates that is statistically significant at a 5% levels. The effect amounts to 7.29 percentage points, on top of the control group rate of 26.3%.

Estimation of differential effects of the Stage 3 treatments across DEB and non-DEB treatment groups (Equation I.2, Column (2)) helps provide explanations for the effects found in prior results tables. The coefficient on the DEB main effect (top row of Column (2)) represents the impact of DEB status for individuals who did not get any of the Stage 3 treatments. The coefficient is negative, large in magnitude (10.9 percentage points),

and statistically significant at the 1% level. This result reveals that DEB status actually substantially reduces HIV testing rates.

Coefficients on the interaction terms between DEB status and the Stage 3 treatments (row 9-13 of Column (2)) indicate how the Stage 3 treatments modify the main effect of DEB status. All of the interaction term coefficients are positive, and most are large in magnitude and statistically significantly different from zero at conventional levels. Providing HIV-related information, counteracting concerns about HIV-related stigma, and providing higher financial incentives all make the impact of DEB status on HIV testing more positive. These effects are comparable to the magnitude to that of the main effect of DEB status; all these Stage 3 treatments therefore can be viewed as counteracting the negative effect of DEB status on HIV testing. These effects are also all similar in magnitude to the effect of providing additional financial incentives (an additional 50 MZN) to get an HIV test.

The exception to this pattern is the coefficient on the interaction term with the combined HIV and ART information treatment, which is much smaller in magnitude and not statistically significantly different from zero at conventional levels. It is possible that providing too much information to respondents reduces the effectiveness of all information provided, perhaps by causing lapses in respondents' concentration or attention.

The main effects of the Stage 3 treatments in Column (2) (row 3-7) represent impacts in control communities. All of these effects are negative, small in magnitude, and not statistically significantly different from zero. The exception is the coefficient on the anti-stigma treatment, which is significant at the 10% level. It is possible that in control communities the anti-stigma treatment actually makes stigma concerns more salient, making people more reticent about getting tested.

Coefficients on the interaction terms between non-DEB status and the Stage 3 treatments (the last rows of coefficients in Column (2)) indicate how the Stage 3 treatments modify the main effect of non-DEB status. Consistent with the non-DEB treatment being less intensive than the DEB treatment, all of these interaction term coefficients are closer to zero compared to the corresponding interaction terms with the DEB treatment, and none are statistically significantly different from zero.

The pattern of impacts of Stage 3 treatments bolster the idea that the FCC program had important deficiencies in providing HIV information and in countering stigma concerns. The Stage 3 treatments providing HIV-related information and countering concerns about HIV-related stigma make the impact of the FCC program on HIV testing more positive. This positive effect is off a base of a substantial negative impact of the program on testing among those who got none of the Stage 3 treatments.

Table PAP13: Minitreatment Impacts on HIV Testing Coupon Redemption

HYPOTHESIS:	(1)	(2)
VARIABLES	S5	S6
	HIV Testing Coupon Redemption	HIV Testing Coupon Redemption
DEB	-0.0249 (0.0188)	-0.109*** (0.0389)
Non-DEB	0.0254 (0.0212)	0.0295 (0.0445)
Anti-Stigma	0.00393 (0.0231)	-0.0523* (0.0283)
HIV Info.	-0.0138 (0.0233)	-0.0473 (0.0329)
ART Info.	-0.00829 (0.0245)	-0.0286 (0.0331)
High Value Coupon	0.0729** (0.0287)	0.0350 (0.0449)
HIV and ART Info.	-0.0223 (0.0242)	-0.0129 (0.0368)
DEB * Anti-Stigma		0.142*** (0.0491)
DEB * HIV Info.		0.119** (0.0526)
DEB * ART Info.		0.121** (0.0547)
DEB * High Value Coupon		0.118* (0.0592)
DEB * HIV and ART Info.		-0.0100 (0.0555)
Non-DEB * Anti-Stigma		0.0658 (0.0620)
Non- DEB * HIV Info.		-0.00204 (0.0618)
Non-DEB * ART Info.		-0.0815 (0.0625)
Non-DEB * High Value Coupon		0.0168 (0.0806)
Non-DEB * HIV and ART Info.		-0.0324 (0.0728)
Observations	3,658	3,658
R-squared	0.062	0.068
Obs level	Household	Household
Control Mean Dep. Var.	0.263	0.263
P-value of test	0.0167	0.000969
DEB = nonDEB		

Notes: Dependent variable in both columns is indicator equal to one if someone in household got an HIV test at local health clinic (based on redemption of encouragement coupon for HIV testing), and zero otherwise. “DEB” is indicator equal to one if household randomly assigned to “DEB” status in Randomization Stage 2, and zero otherwise. Coefficient on Treatment was pre-specified as of primary interest in this study. “Non-DEB” is defined analogously for “Non-DEB” status, and was pre-specified as of secondary interest in this study. All regressions control for matched pair fixed effects and for a community-level index of affectedness by Cyclone Idai. Standard errors clustered at the community level in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

J Requested Secondary Analyses

Reviewers of our pre-analysis plan additionally requested further analyses to test the robustness of our results.

The first request was that our analyses control for household size and total number of HIV testing recommendations per household in testing impacts on our combined measure of HIV testing. This is a slight modification of Equation C.1 with the addition of two control variables. This result is seen in Column (1) of Table PAP14. Household size statistically significantly increases the likelihood of testing for HIV, and total number of recommendations for a household statistically significantly decreases the likelihood of testing for HIV. Inclusion of these controls does not substantially change DEB and non-DEB coefficients.

The second request was that we perform the analysis of self-reported HIV testing at the individual level rather than the household level. Again, this is a modification of Equation C.1 where the unit of observation i is at the individual level rather than the household level. This result is shown in Column (2) of Table PAP14. At the individual level data, both DEB and non-DEB status have a statistically significantly positive effect on self-reporting having been tested for HIV.

Table PAP14: **Other Secondary Analysis of DEB and Non-DEB on HIV Testing**

	(1)	(2)
HYPOTHESIS:	P2	P2
VARIABLES	Combined HIV Testing Measure	Self-Reported HIV Testing
DEB	0.0286 (0.0195)	0.0538*** (0.0170)
Non-DEB	0.0439** (0.0199)	0.0587*** (0.0203)
Household Size	0.0221*** (0.00353)	
Household Total Test Recommendations	-0.00991** (0.00491)	
Observations	3,658	13,894
R-squared	0.043	0.040
Obs level	Household	Individual
Control Mean Dep. Var.	0.721	0.275
P-value of test DEB = Non-DEB	0.402	0.791

Notes: Dependent variables are as follows. Column 1: indicator for self-reporting having an HIV test or redeeming a coupon for an HIV test. Column 2: indicator for self-reporting taking an HIV test. “DEB” is indicator equal to one if household randomly assigned to “DEB” status in Randomization Stage 2, and zero otherwise. Coefficient on Treatment was pre-specified as of primary interest in this study. “Non-DEB” is defined analogously for “Non-DEB” status, and was pre-specified as of secondary interest in this study. All regressions control for matched pair fixed effects and for a community-level index of affectedness by Cyclone Idai. Standard errors clustered at the community level in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

The third request was that we test hypotheses S5 and S6 of the stage 3 randomization, but to pool the HIV and ART information treatment arms together. This is a modification of Equation I.1 where $InfoHIV_{ijs}$, $InfoART_{ijs}$, and $InfoHIV/ART_{ijs}$ are combined into a single indicator variable (equal to one if the household was randomly assigned to any of the three information treatments, and zero otherwise). Table PAP15 displays the results of the stage 3 randomization with pooled information treatments on coupon redemption for HIV testing. In both the direct and interaction effect regressions (Columns (1) and (2), respectively), pooled information treatments have a negative and statistically insignificant effect on HIV testing coupon redemption. Again, the interaction effect with DEB and non-DEB status are a modification of Equation I.2 where $InfoHIV_{ijs}$, $InfoART_{ijs}$, and $InfoHIV/ART_{ijs}$ are combined into a single pooled term before being interacted with DEB and non-DEB status. The interaction effect of DEB with the pooled information group is positive and statistically significant.

Table PAP15: **Other Secondary Analysis of Randomization Stage 3 Impacts on HIV Testing**

	(1)	(2)
HYPOTHESIS:	S5	S6
VARIABLES	HIV Testing Coupon Redemption	HIV Testing Coupon Redemption
DEB	-0.0248 (0.0187)	-0.109*** (0.0388)
Non-DEB	0.0253 (0.0212)	0.0296 (0.0445)
Anti-Stigma	0.00394 (0.0230)	-0.0523* (0.0283)
High Value Coupon	0.0734** (0.0288)	0.0353 (0.0448)
Pooled HIV and ART Info.	-0.0140 (0.0204)	-0.0310 (0.0290)
DEB * Anti-Stigma		0.142*** (0.0490)
DEB * High Value Coupon		0.118* (0.0591)
DEB * Pooled HIV and ART Info.		0.0848* (0.0453)
Non-DEB * Anti-Stigma		0.0658 (0.0619)
Non-DEB * High Value Coupon		0.0169 (0.0805)
Non-DEB * Pooled HIV and ART Info.		-0.0377 (0.0544)
Observations	3,658	3,658
R-squared	0.062	0.065
Obs level	Household	Household
Control Mean Dep. Var.	0.263	0.263
P-value of test DEB = nonDEB	0.0170	0.000968

Notes: Dependent variable in both columns is indicator equal to one if someone in household got an HIV test at local health clinic (based on redemption of encouragement coupon for HIV testing), and zero otherwise. “DEB” is indicator equal to one if household randomly assigned to “DEB” status in Randomization Stage 2, and zero otherwise. Coefficient on Treatment was pre-specified as of primary interest in this study. “Non-DEB” is defined analogously for “Non-DEB” status, and was pre-specified as of secondary interest in this study. All regressions control for matched pair fixed effects and for a community-level index of affectedness by Cyclone Idai. Standard errors clustered at the community level in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

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